Radiation Safety Training for NIH Summer Coordinators

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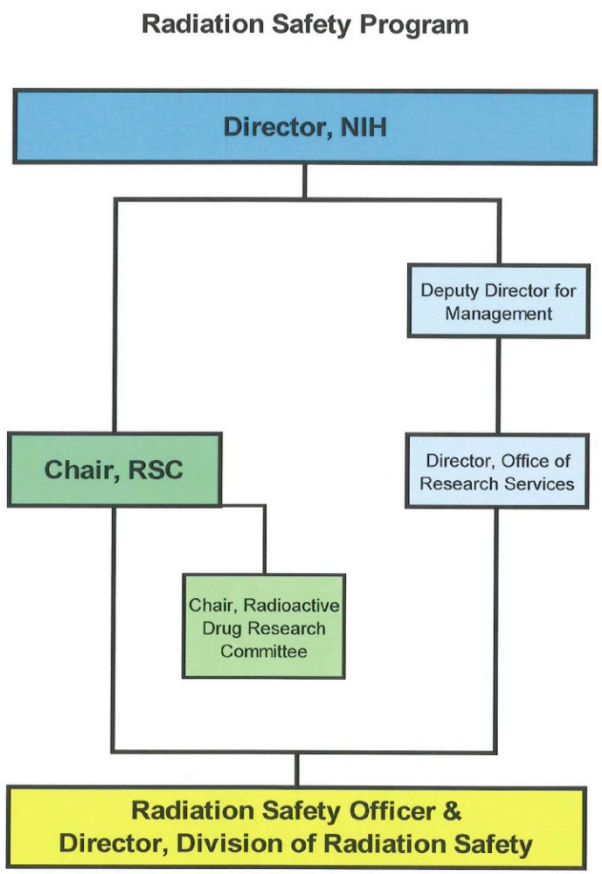
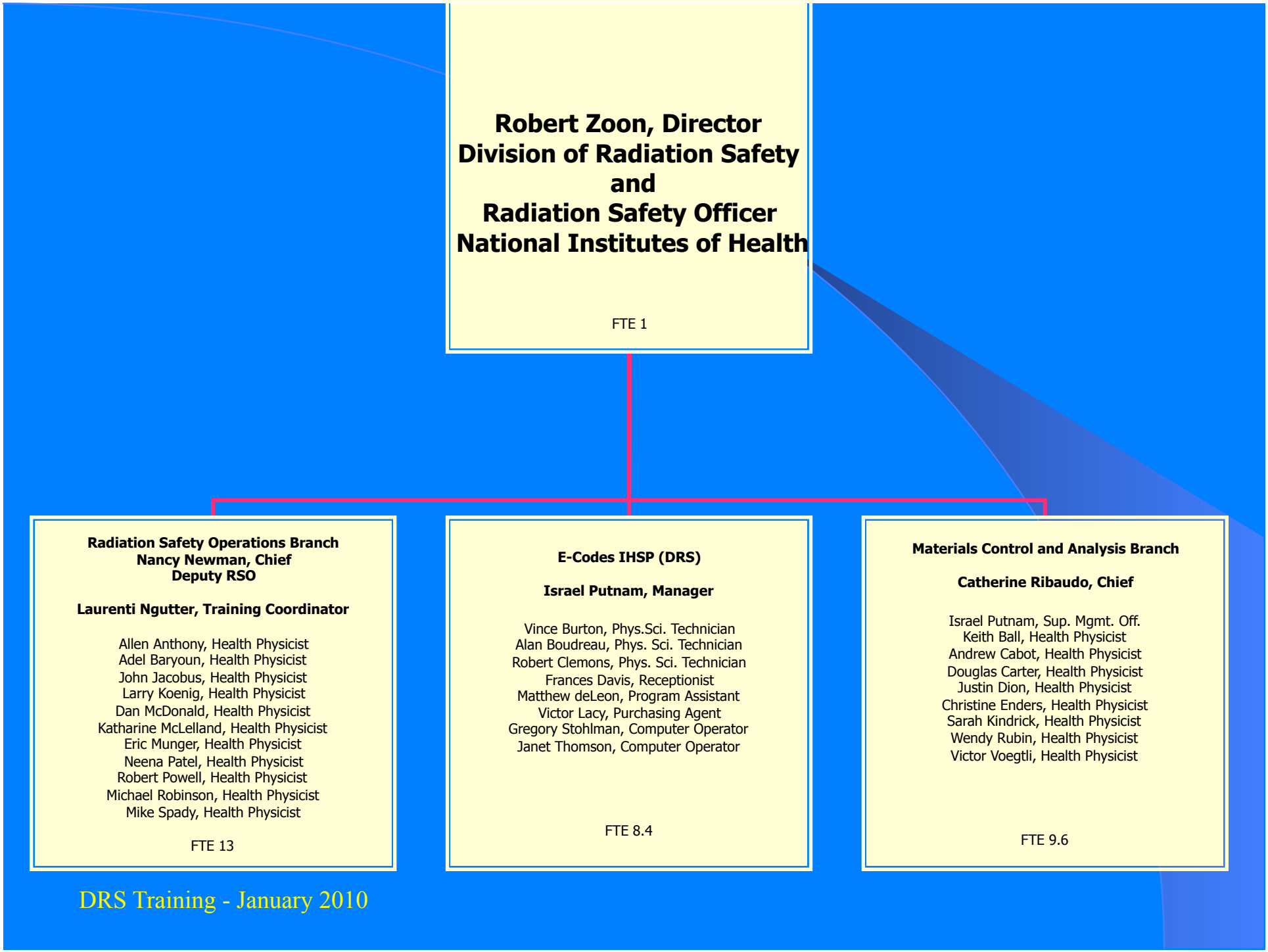
Division of Radiation Safety, NIH

http://drs.ors.od.nih.gov/

First, a safety tip!



- The Radiation Safety Officer (RSO) answers to the NIH Director via two parallel chains of command.
- The RSO is accountable to the ORS Director and the NIH Radiation Safety Committee.


Robert Zoon, Director
Division of Radiation Safety
and
Radiation Safety Officer
National Institutes of Health
FTE 1
Radiation Safety Operations Branch
Nancy Newman, Chief
Deputy RSO
Laurenti Ngutter, Training Coordinator
Allen Anthony, Health Physicist
Adel Baryoun, Health Physicist
John Jacobus, Health Physicist
Larry Koenig, Health Physicist
Dan McDonald, Health Physicist
Katharine McLelland, Health Physicist
Eric Munger, Health Physicist
Neena Patel, Health Physicist
Robert Powell, Health Physicist
Michael Robinson, Health Physicist
Mike Spady, Health Physicist
FTE 13
E-Codes IHSP (DRS)
Israel Putnam, Manager
Vince Burton, Phys.Sci. Technician
Alan Boudreau, Phys. Sci. Technician
Robert Clemons, Phys. Sci. Technician
Frances Davis, Receptionist
Matthew deLeon, Program Assistant
Victor Lacy, Purchasing Agent
Gregory Stohlman, Computer Operator
Janet Thomson, Computer Operator
FTE 8.4
Materials Control and Analysis Branch
Catherine Ribaudo, Chief
Israel Putnam, Sup. Mgmt. Off.
Keith Ball, Health Physicist
Andrew Cabot, Health Physicist
Douglas Carter, Health Physicist
Justin Dion, Health Physicist
Christine Enders, Health Physicist
Sarah Kindrick, Health Physicist
Wendy Rubin, Health Physicist
Victor Voegtli, Health Physicist
FTE 9.6

DIVISION OF RADIATION SAFETY AREA ASSIGNMENTS
(Effective 5/1/09)

Area	Primary Responsibility	Areas	Backup
1	MIKE SPADY	13, 14, 18, 2R, 2RA 32, 32 T-1, 32 T-2, 33 41, 41A, 42 (ARC) 50, 65a	LARRY KOENIG
2	KATHY MCLELLAN	4, 5, 6, 6A, 6B, 7, 8, 8A, 9 31, 51, 67	ROB POWELL
3	MIKE ROBERSON	10/B2-2, PET 21P, Palk CC Imaging Center	ALLEN ANTHONY ERIC MUNGER
4	ADEL BARYOUN	10/FLOORS 3-7	NEENA PATEL
5	LAURENTI NGUTTER	10/B-13, 10A	JOHN JACOBUS
6	DOUG CARTER	NIH (Frederick)	ALLEN ANTHONY ADEL BARYOUN MIKE SPADY
7	JOHN JACOBUS	10/B3, RAD ONCOLOGY Choyke/Regino	LAURENTI NGUTTER
8	ROB POWELL	ATC; TWINBROOK 1-4 5 RESEARCH COURT NICHOLSON LANE NIHAC (Poolesville) 9800 MEDICAL CENTER DRIVE	KATHY MCLELLAN
9	LARRY KOENIG	1, 15, CYCLOTRON NIMH HOT CELLS GMP Facility Garmestani/Brechbiel/Mikenas/Baldoo Kiesewetter/Lang (NIBIB)	MIKE ROBERSON ALLEN ANTHONY
10	NEENA PATEL	35, 37, 40	ADEL BARYOUN
11	CHRIS ENDERS	21, except waste and radpharm	DREW CABOT
12	DAN MCDONALD	29, 29A, 29B, 30	ERIC MUNGER ALLEN ANTHONY
13	WENDY RUBIN	21 Waste area, 25, 26T	DREW CABOT
14	ERIC MUNGER	49, BALTIMORE CRC except Rad Onc, GMP, PET Imms/Liow/Zoghbi/Gladding	DAN MCDONALD JOHN JACOBUS

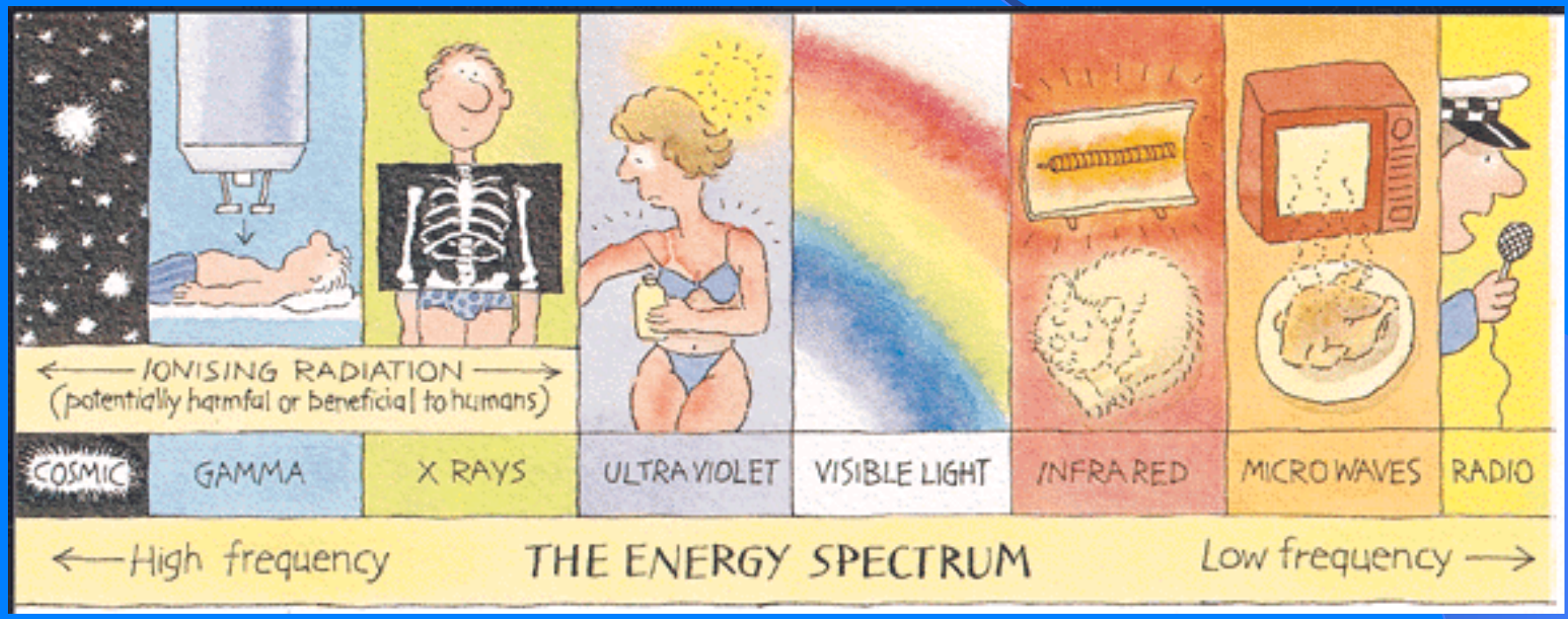
Radiation Safety staff are assigned by building, and in the Clinical Center, by floor.

- Area Health Physicist (HP) assignments are by Building, **not by Institute**… AND, by floor in Building 10.
- Assignments change periodically. Call 301-496-5774 and ask for the area HP by Building number, or access the Services section of our website for the current list.

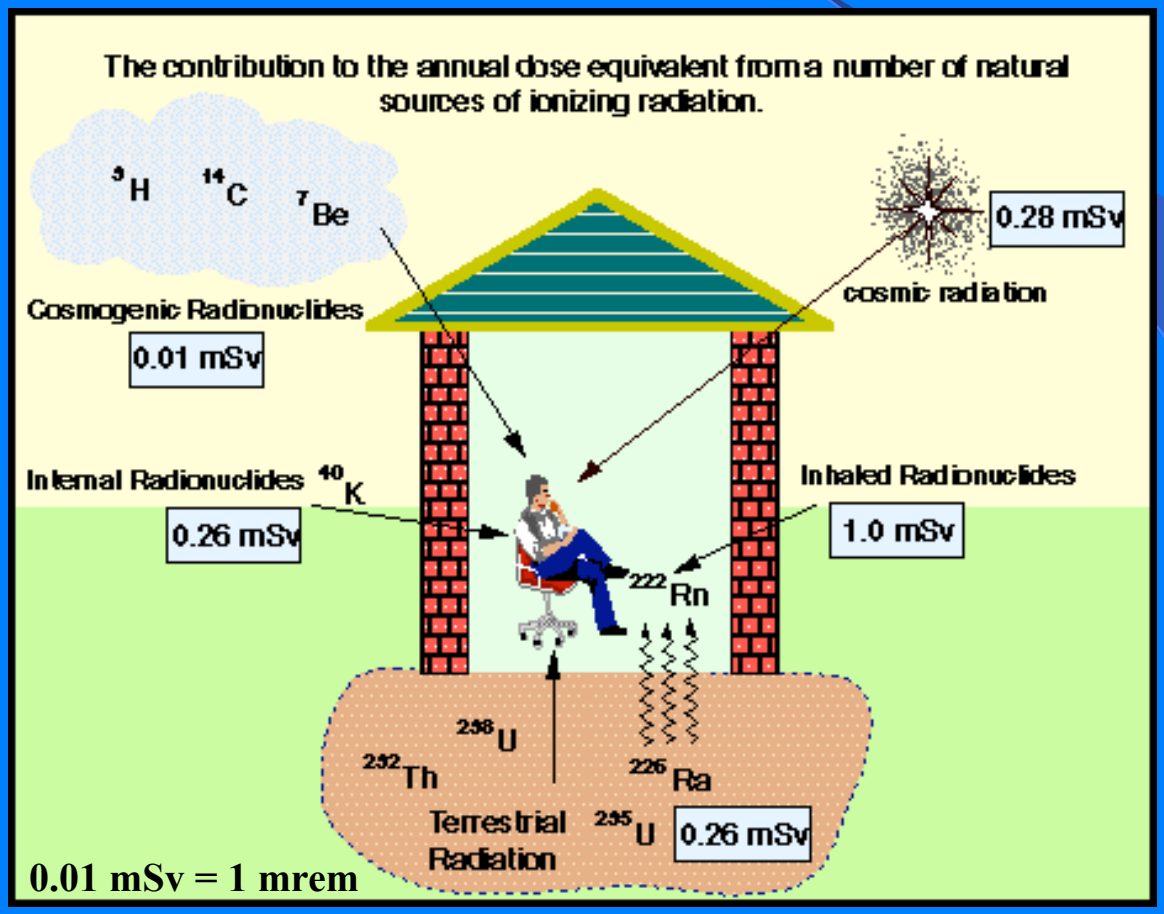
Ionizing Radiation

- All around us (radon, K-40, C-14, etc).
- Invisible to humans (detectable by electronics).
- Comes from earth and outer space (cosmic).
- Detectable and measurable when present.
- Beam, Liquid, Solid form (sealed sources).
  - Radioactive Material (RAM) or x-ray sources.

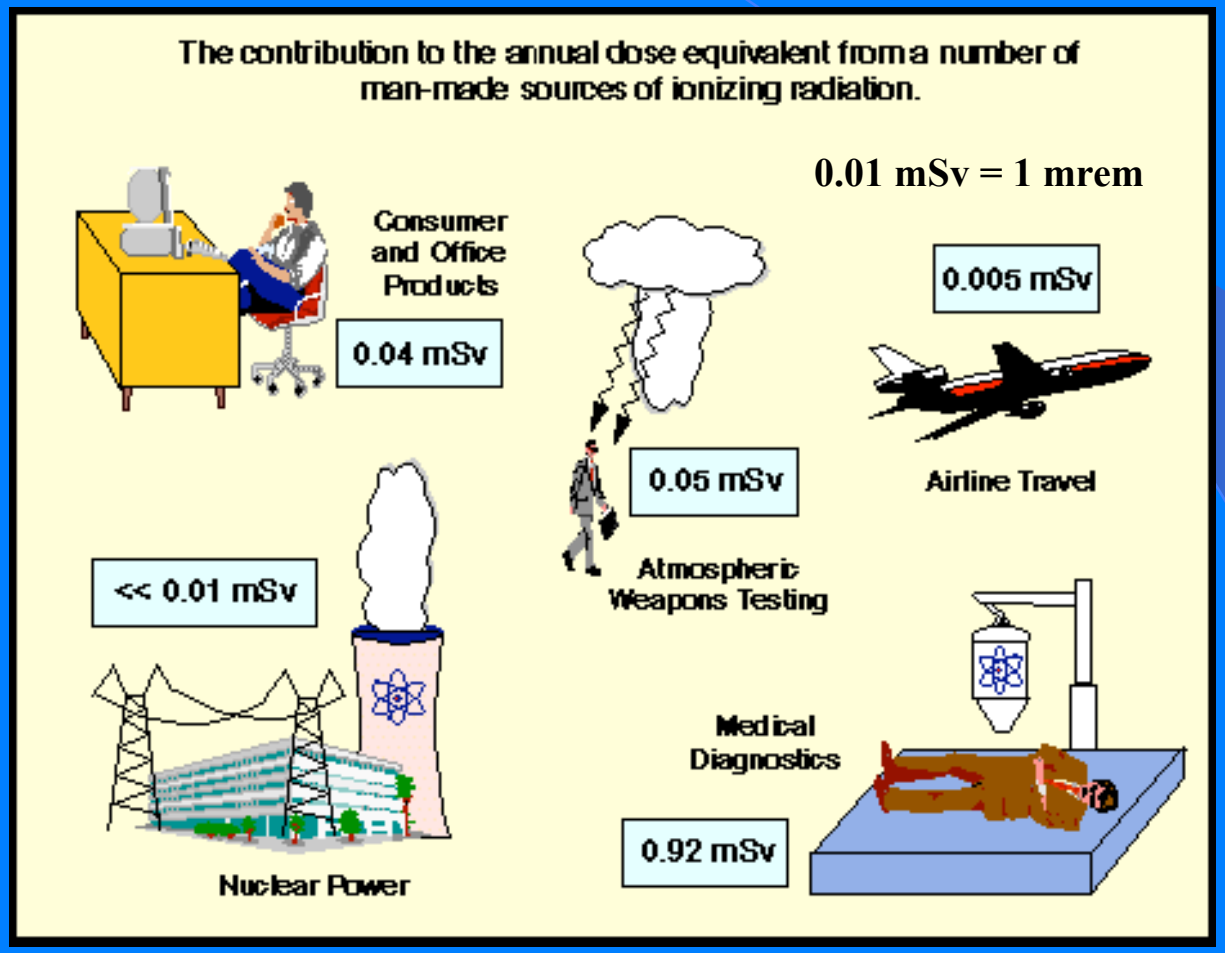
Electromagnetic Spectrum



Natural Background



Man-Made Background



Typical Doses

Occupational Limit (18+)……..5,000 mrem/yr
Occupational Limit (Minors)……..500 mrem/yr
General public Limit……...100 mrem/yr
Avg. Dose to U.S. Public……620 mrem/yr
Coast to Coast Airplane roundtrip…. ……5 mrem
Chest x-ray……8 mrem
Dental x-ray……...10 mrem
CT (Head and Body)…… 1,100 mrem
Therapeutic thyroid treatment (Thyroid)
……..10,000,000 mrem

A COMPARISON OF RISKS
AVERAGE LOSS OF LIFE EXPECTANCY IN DAYS

Being Unmarried -- male	3500	Falls	39
Cigarette Smoking -- male	2250	Accidents to Pedestriants	37
Heart Disease	2100	Safetest Jobs -- Accidents	30
Being Unmarried -- female	1600	Generation of Energy	24
Being 30% Overweight	1300	Illicit Drugs (U.S. Ave.)	18
Coal Miner	1100	Poison	17
Cancer	980	Natural Radiation	11
20% Overweight	900	Medical X-rays	8
Stroke	920	Coffee	6
Dangerous Job -- Accidents	300	Oral Contraceptives	5
Motor Vehicle Accidents	270	All Catastrophes	3.5
Accidents in the Home	95	Diet Drinks	2
Diabetes	95	Nuclear Industry (Normal)	0.02
Average Job -- Accidents	74	PAP Tests	-4
Drowning	41	Smoke Alarm in Home	-10
Radiation Exposure (0.5 rem)	40	Mobile Coronary Care Units	-125

Ref: Dr. Bernard L. Cohen, U. of Pittsburgh

Division of Radiation Safety

- Ensures radiation risks to NIH staff, patients, and public are minimized
  - Provide oversight and training via the area HP
  - Monitor exposures
  - Examine work practices
- Ensures radioactive material is used in compliance with Nuclear Regulatory Commission licenses and regulations.

Division of Radiation Safety

- Provides comprehensive oversight, consultation, and training via As Low As Reasonably Achievable (*ALARA)* policies geared to all individual or designated (radiation) users at NIH.

- PRIMARILY caters to personnel planning to work with/near or use radiation and/or radioactive material in their research to ensure ALARA.

- ALL RAM users MUST *register* with DRS, *pass* the basic 3-hour "Radiation Safety in the Laboratory" or RSL course, and *complete* an online **dosimeter** evaluation form (DEF) **prior** to their research.

Division of Radiation Safety

- Individuals returning to NIH and planning to use RAM must submit a ***revised*** radiation DEF.
- Refresher courses are typically NOT* required for returning students as long as they are "inactive" for less than **4** years OR remain "active" in the DRS database while away.
- Inactive individuals returning to NIH after more than 4 years MUST retake the RSL course.

*Annual refresher training required if working with RAM in high radiological hazard areas!!! **Notified by area HP**

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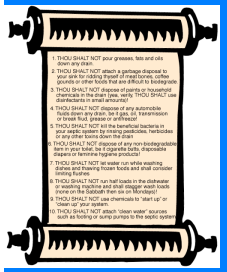


BASIC RULES:

- No eating, drinking, smoking, or mouth pipetting.
- No shorts, short skirts, or open shoes.
- Wear lab coat & gloves.
- Proper monitoring & frequent glove changes.
- Frequent hand washing, esp. before leaving lab.
- Avoid touching face and hair.
- Supervise all lab visitors & challenge strangers.
- Maintain RAM and radioactive waste security.

Minor Policy

- Prior to work with radiation or RAM, minors MUST submit an application for DRS approval using 6 criteria.
- Dose limits for minors are 10% of the limit for occupational workers > 18 years.
- All minors are prohibited from handling source vials or working with volatile RAM.
- Minors under the age of 16 **are prohibited** from working with any RAM.

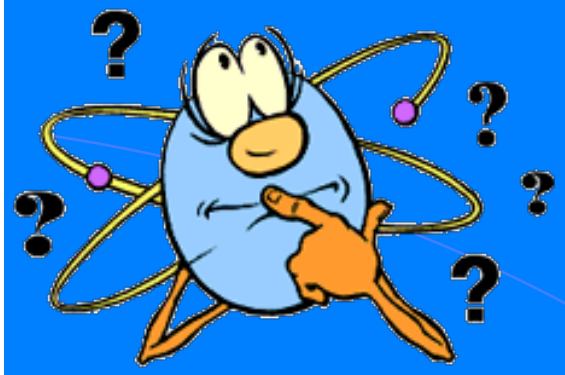
Minor Policy

- Minors 16 - 17 years old ***NEED***...
  - Special permission from NIH RSO for **RESTRICTED** use of radioactive materials, including performing monthly surveys.
  - Written parental or guardian consent.
  - Successful completion of the *"Laboratory Safety"* and *RSL* courses.
  - Direct supervision by a trained radiation user at ALL times when using radiation or RAM.

Division of Radiation Safety

- Summer 2010 RSL course dates, times, and locations

DATE	TIME	LOCATION
April 8	9-12pm	Building 21
April 22	9-12pm	Building 21
May 6	1-4pm	Building 21
May 20	9-12pm	Building 21
June 17	9-12pm	Lipsett Auditorium
July 8	1-4pm	Lipsett Auditorium
August 5	9-12pm	Lipsett Auditorium
August 19	9-12pm	Building 21



Questions? Need Help?

Contact the area Health Physicist

301-496-5774